
Subject: Re: Contributed Source: CW_selectaxes (Corrected and working!)
Posted by [Doug Larson](#) on Mon, 28 Sep 1998 07:00:00 GMT
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For some reason the source did not attach properly.
Here it is (I hope) :)

--
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```
. *****  
;  
;+  
; NAME:  
;   CW_SelectAxes  
;  
; PURPOSE:  
;   A compound widget to select axes for an arbitrary plotting application.  
;   The default is (X,Y) but the DIMENSION keyword can be set to 3 for Z.  
;  
; AUTHOR:  
;   Douglas J. Larson, Ph.D.  
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;  
; MODULES REQUIRED:  
;   CW_SelectAxes_get_value  
;   CW_SelectAxes_set_value  
;   CW_SelectAxes_event  
;   CW_SelectAxes  
;   These two modules test the CW_SelectAxes modules:  
;   test_CW_SelectAxes_event  
;   test_CW_SelectAxes  
;  
; CATEGORY:  
;   WIDGETS  
;  
; CALLING SEQUENCE:  
;   result = SelectAxes(parent)  
;
```

```

; INPUTS:
;   Parent:      The ID of the parent widget.
;
;
; OPTIONAL KEYWORD PARAMETERS:
; LABELLIST:    Default is ['X Axis', 'Y Axis', ['Z Axis']]
; LABELFONT:    Font used for the list labels
; LABELPLACE:   0: TOP of each list
;               1: LEFT for row layout, RIGHT for column
; LISTNAMES:    Names of the list elements, copied for all axes
; LISTFONT:     Font used for the list elements
; LISTPLACE:    0: Lists laid out as a ROW
;               1: Lists laid out vertically in a COLUMN
; TITLEAS:      The CW title title (The default is no title.)
; TITLEFONT:    Font to use for the select axes title
; TITLEPLACE:   0: TOP
;               1: LEFT SIDE
; FRAME:        Set this keyword to have a frame drawn around the
;               widget. The default is FRAME=0.
; UVALUE:       The "user value" to be assigned to the widget.
; VALUE:        The initial value setting of the widget.
; XSIZE:        Width of the list widget in characters.
; YSIZE:        Height of the list widget in characters.
;
; OUTPUTS:
;   The ID of the created widget is returned.
;
; SIDE EFFECTS:
;   This widget generates event structures containing a field
;   named value when its selection thumb is moved.
;
; PROCEDURE:
;   WIDGET_CONTROL, id, SET_VALUE=value can be used to change the
;   current value displayed by the widget.
;
;   WIDGET_CONTROL, id, GET_VALUE=var can be used to obtain the current
;   values displayed by the widget.
;
; MODIFICATION HISTORY:
;   Created by: Douglas J. Larson, 24 September 1998
;   26 September, 1998 - Changed the default font to be OS aware.
;   Implemented the fix to my return structure suggested by
;   David Fanning, now it works!
;
;
;-----
=====
FUNCTION CW_SelectAxes_get_value, id
; Recover the state of this compound widget

```

```

stash = WIDGET_INFO(id, /CHILD)
WIDGET_CONTROL, stash, GET_UVALUE=state, /NO_COPY

if(state.dimension eq 2)then $
  ret = [ state.ListIndexX, state.ListIndexY ]

if(state.dimension eq 3)then $
  ret = [ state.ListIndexX, state.ListIndexY, state.ListIndexZ ]

WIDGET_CONTROL, stash, SET_UVALUE=state, /NO_COPY
return, ret
end
; -----
FUNCTION CW_SelectAxes_set_value, id
; Recover the state of this compound widget
stash = WIDGET_INFO(id, /CHILD)
WIDGET_CONTROL, stash, GET_UVALUE=state, /NO_COPY

if(state.selectList eq 0)then begin
  state.ListIndexX = value
endif

if(state.selectList eq 1)then begin
  state.ListIndexY = value
endif

if(state.selectList eq 2)then begin
  state.ListNamesZ = value
endif

WIDGET_CONTROL, stash, SET_UVALUE=state, /NO_COPY
end
; -----
FUNCTION CW_SelectAxes_event, event

; Retrieve the structure from the child that contains the sub ids
parent=event.handler
stash = WIDGET_INFO(parent, /CHILD)
WIDGET_CONTROL, stash, GET_UVALUE=state, /NO_COPY
eventValue = event.index

; See which list was clicked, the X, Y, or Z axis.
CASE event.ID OF
  state.xaxisID : BEGIN
    state.selectList = 0
    selectNames = state.listNamesX
    if(state.bugmsg eq 1)then print, 'Xaxis List=', eventValue
  END

```

```

state.yaxisID : BEGIN
  state.selectList = 1
  selectNames = state.listNamesY
  if(state.bugmsg eq 1)then print,'Yaxis List=',eventValue
  END
state.zaxisID : BEGIN
  state.selectList = 2
  selectNames = state.listNamesZ
  if(state.bugmsg eq 1)then print,'Zaxis List=',eventValue
  END
ENDCASE

ret = { SelectAxes_event, ID:parent, TOP:event.top, HANDLER:0L, $
  axis:state.selectList, index:event.index, $
  items:Ptr_New(selectNames) }

```

```
WIDGET_CONTROL, stash, SET_UVALUE = state, /NO_COPY
```

```
RETURN, ret
```

```
END
```

```

; -----
FUNCTION CW_SelectAxes, parent, DEBUG=bugmsg, DIMENSION = dimension, $
  LABELLIST=labellist, LABELFONT=labelfont, LABELPLACE=LabelPlace, $
  TITLEAS = titleas, TITLEFONT=titlefont, TITLEPLACE=titleplace, $
  FRAME = frame, UVALUE = uval, VALUE = val, $
  LISTNAMES=listnames, LISTFONT=listfont, LISTPLACE=listplace, $
  XAXISLIST = ListNamesX, $
  YAXISLIST = ListNamesY, $
  ZAXISLIST = ListNamesZ, $
  XSIZE = xsize, YSIZE = ysize, ZSIZE = zsize

```

```

if(N_PARAMS() EQ 0) then MESSAGE, 'Incorrect number of arguments'
ON_ERROR, 2 ;return to caller

```

```
; Defaults for keywords
```

```
; -----
```

```

if NOT(KEYWORD_SET(bugmsg)) then bugmsg = 0
if N_ELEMENTS(dimension) EQ 0 then dimension = 2
if N_ELEMENTS(labellist) EQ 0 then begin
  CASE dimension OF
  2: begin
    labellist = STRARR(2)
    labellist[0] = 'X Axis'
    labellist[1] = 'Y Axis'
  end
  3: begin
    labellist = STRARR(3)

```

```

    labellist[0] = 'X Axis'
    labellist[1] = 'Y Axis'
    labellist[2] = 'Z Axis'
end
ENDCASE
endif
if NOT(KEYWORD_SET(labelfont))then begin
  case !version.os_family of
    'Windows': BEGIN
      labelfont = 'times'
      END
    'MacOS': BEGIN
      labelfont = 'times'
      END
    'unix' : BEGIN
      labelfont = $
      '-adobe-helvetica-bold-r-normal--12-120-75-75-p-70-iso8859-1 '
      END
  endcase
endif
if N_ELEMENTS(LabelPlace) EQ 0 then LabelPlace = 0
if N_ELEMENTS(titleas) EQ 0 then titleas = ""
if N_ELEMENTS(titlefont) EQ 0 then titlefont = labelfont
if N_ELEMENTS(titleplace) EQ 0 then titleplace = 0
if N_ELEMENTS(frame) EQ 0 then frame = 0
if N_ELEMENTS(uval) EQ 0 then uval = 0
if N_ELEMENTS(val) EQ 0 then val = 0
if N_ELEMENTS(xsize) EQ 0 then xsize = 6
if N_ELEMENTS(ysize) EQ 0 then ysize = 6
if N_ELEMENTS(listfont) EQ 0 then listfont = labelfont
if N_ELEMENTS(listplace) EQ 0 then listplace = 0

; The actual list elements can be specified on a per list
; basis, or once with the LISTNAMES keyword.
nListNames = N_ELEMENTS(ListNames)
nListNamesX = N_ELEMENTS(ListNamesX)
nListNamesY = N_ELEMENTS(ListNamesY)
nListNamesZ = N_ELEMENTS(ListNamesZ)
if(nListNames eq 0)then begin
  filldefaults = 0L
  CASE dimension OF
    2: begin
      if((nListNamesX EQ 0) or (nListNamesY EQ 0)) then filldefaults = 1L
      end
    3: begin
      if((nListNamesX EQ 0) or $
        (nListNamesY EQ 0) or $
        (nListNamesZ EQ 0)) then begin

```

```

        filldefaults = 1L
    endif
end
ENDCASE
if(filldefaults EQ 1L) then begin
    nListNamesX = 10
    nListNamesY = nListNamesX
    nListNamesZ = nListNamesX
    ListNamesX = STRARR(nListNamesX)
    ListNamesY = STRARR(nListNamesY)
    ListNamesZ = STRARR(nListNamesZ)
    for i = 0, nListNamesX-1 do begin
        name = 'Value '+strcompress(STRING(i))
        ListNamesX[i] = name
        ListNamesY[i] = name
        ListNamesZ[i] = name
    endfor
endif else begin
    nListNamesX = nListNames
    nListNamesY = nListNames
    nListNamesZ = nListNames
    ListNamesX = STRARR(nListNames)
    ListNamesY = STRARR(nListNames)
    ListNamesZ = STRARR(nListNames)
    ListNamesX = ListNames[*]
    ListNamesY = ListNames[*]
    ListNamesZ = ListNames[*]
endelse

; Setup placement of a title for this CW
; -----
if(titleplace eq 0)then begin      ; COLUMN
    SelectAxesTLB=WIDGET_BASE(parent, /COLUMN)
    titleBase = WIDGET_BASE(SelectAxesTLB, /ALIGN_CENTER)
endif else begin      ; ROW
    SelectAxesTLB=WIDGET_BASE(parent, /ROW)
    titleBase = WIDGET_BASE(SelectAxesTLB, /ALIGN_CENTER)
endelse
title = WIDGET_LABEL(titleBase, VALUE=titles, FONT=titlefont)

; Setup layout of lists as a row or a column
; -----
if(listplace eq 0)then begin      ; ROW
    SelectAxesBase=WIDGET_BASE(SelectAxesTLB, /ROW)

; Setup placement of each individual list's title
; -----

```

CASE LabelPlace OF

0 : BEGIN

```
xaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /COL)
labelxBASE = WIDGET_BASE(xaxisBase, /ALIGN_CENTER, /COL)
labelx = WIDGET_LABEL(labelxBASE, VALUE=labellist[0], $
    FONT=labelfont)
xaxisID = WIDGET_LIST(xaxisBase, VALUE=ListNamesX, $
    UVALUE=labellist[0], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
```

```
yaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /COL)
labelyBase = WIDGET_BASE(yaxisBase, /ALIGN_CENTER, /COL)
labely = WIDGET_LABEL(labelyBase, VALUE=labellist[1], $
    FONT=labelfont)
yaxisID = WIDGET_LIST(yaxisBase, VALUE=ListNamesY, $
    UVALUE=labellist[1], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
```

if(dimension eq 3)then begin

```
zaxisBase = WIDGET_BASE(SelectAxesBase, $
    GROUP_LEADER = parent, /COL)
labelzbase = WIDGET_BASE(zaxisBase, /ALIGN_CENTER, /COL)
labelz = WIDGET_LABEL(labelzbase, VALUE=labellist[2], $
    FONT=labelfont)
zaxisID = WIDGET_LIST(zaxisBase, VALUE=ListNamesZ, $
    UVALUE=labellist[2], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
```

endif else begin

```
zaxisID = 0L
```

endelse

END

1 : BEGIN

```
xaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /ROW)
labelxBASE = WIDGET_BASE(xaxisBase, /ALIGN_CENTER)
labelx = WIDGET_LABEL(labelxBASE, VALUE=labellist[0], $
    FONT=labelfont)
xaxisID = WIDGET_LIST(xaxisBase, VALUE=ListNamesX, $
    UVALUE=labellist[0], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
```

```
yaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /ROW)
labelyBase = WIDGET_BASE(yaxisBase, /ALIGN_CENTER)
labely = WIDGET_LABEL(labelyBase, VALUE=labellist[1], $
```

```

        FONT=labelfont)
yaxisID = WIDGET_LIST(yaxisBase, VALUE=ListNamesY, $
    UVALUE=labelist[1], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)

if(dimension eq 3)then begin
    zaxisBase = WIDGET_BASE(SelectAxesBase, $
        GROUP_LEADER = parent, /ROW)
    labelzbase = WIDGET_BASE(zaxisBase, /ALIGN_CENTER)
    labelz = WIDGET_LABEL(labelzbase, VALUE=labelist[2], $
        FONT=labelfont)
    zaxisID = WIDGET_LIST(zaxisBase, VALUE=ListNamesZ, $
        UVALUE=labelist[2], $
        FONT=listfont, $
        XSIZE=xsize, YSIZE=ysize)
endif else begin
    zaxisID = 0L
endif
END
ENDCASE
endif else begin          ; COLUMN
    SelectAxesBase=WIDGET_BASE(SelectAxesTLB, /COLUMN)

; Setup placement of each individual list's title
; -----
CASE LabelPlace OF
0 : BEGIN
    xaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /COL)
    labelxBASE = WIDGET_BASE(xaxisBase, /ALIGN_CENTER, /COL)
    labelx = WIDGET_LABEL(labelxBASE, VALUE=labelist[0], $
        FONT=labelfont)
    xaxisID = WIDGET_LIST(xaxisBase, VALUE=ListNamesX, $
        UVALUE=labelist[0], $
        FONT=listfont, $
        XSIZE=xsize, YSIZE=ysize)

    yaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /COL)
    labelyBase = WIDGET_BASE(yaxisBase, /ALIGN_CENTER, /COL)
    labely = WIDGET_LABEL(labelyBase, VALUE=labelist[1], $
        FONT=labelfont)
    yaxisID = WIDGET_LIST(yaxisBase, VALUE=ListNamesY, $
        UVALUE=labelist[1], $
        FONT=listfont, $
        XSIZE=xsize, YSIZE=ysize)

if(dimension eq 3)then begin
    zaxisBase = WIDGET_BASE(SelectAxesBase, $

```

```

        GROUP_LEADER = parent, /COL)
    labelzbase = WIDGET_BASE(zaxisBase, /ALIGN_CENTER, /COL)
    labelz = WIDGET_LABEL(labelzbase, VALUE=labellist[2], $
        FONT=labelfont)
    zaxisID = WIDGET_LIST(zaxisBase, VALUE=ListNamesZ, $
        UVALUE=labellist[2], $
        FONT=listfont, $
        XSIZE=xsize, YSIZE=ysize)
endif else begin
    zaxisID = 0L
endelse
END
1 : BEGIN
xaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /ROW)
xaxisID = WIDGET_LIST(xaxisBase, VALUE=ListNamesX, $
    UVALUE=labellist[0], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
labelxBase = WIDGET_BASE(xaxisBase, /ALIGN_CENTER)
labelx = WIDGET_LABEL(labelxBase, VALUE=labellist[0], $
    FONT=labelfont)

yaxisBase = WIDGET_BASE(SelectAxesBase, GROUP_LEADER = parent, /ROW)
yaxisID = WIDGET_LIST(yaxisBase, VALUE=ListNamesY, $
    UVALUE=labellist[1], $
    FONT=listfont, $
    XSIZE=xsize, YSIZE=ysize)
labelyBase = WIDGET_BASE(yaxisBase, /ALIGN_CENTER)
labely = WIDGET_LABEL(labelyBase, VALUE=labellist[1], $
    FONT=labelfont)

if(dimension eq 3)then begin
    zaxisBase = WIDGET_BASE(SelectAxesBase, $
        GROUP_LEADER = parent, /COLUMN)
    zaxisID = WIDGET_LIST(zaxisBase, VALUE=ListNamesZ, $
        UVALUE=labellist[2], $
        FONT=listfont, $
        XSIZE=xsize, YSIZE=ysize)
    labelzbase = WIDGET_BASE(zaxisBase, /ALIGN_CENTER)
    labelz = WIDGET_LABEL(labelzbase, VALUE=labellist[2], $
        FONT=labelfont)
endif else begin
    zaxisID = 0L
endelse
END
ENDCASE
endelse

```

; The state is dependent on the number of axes

; -----

selectList=0

CASE dimension OF

2: begin

```
state = { SelectAxesTLB: SelectAxesTLB, $
  selectList: selectList, $
  bugmsg: bugmsg, $
  dimension: dimension, $
  xaxisID: xaxisID, $
  yaxisID: yaxisID, $
  ListIndexX: LONARR(nListNamesX), $
  ListIndexY: LONARR(nListNamesY), $
  ListNamesX: ListNamesX, $
  ListNamesY: ListNamesY }
```

end

3: begin

```
state = { SelectAxesTLB: SelectAxesTLB, $
  selectList: selectList, $
  bugmsg: bugmsg, $
  dimension: dimension, $
  xaxisID: xaxisID, $
  yaxisID: yaxisID, $
  zaxisID: zaxisID, $
  ListIndexX: LONARR(nListNamesX), $
  ListIndexY: LONARR(nListNamesY), $
  ListIndexZ: LONARR(nListNamesZ), $
  ListNamesX: ListNamesX, $
  ListNamesY: ListNamesY, $
  ListNamesZ: ListNamesZ }
```

end

ENDCASE

```
WIDGET_CONTROL, SelectAxesTLB, SET_UVALUE = uval, $
  EVENT_FUNC = 'CW_SelectAxes_event', $
  PRO_SET_VALUE = 'CW_SelectAxes_set_value', $
  FUNC_GET_VALUE = 'CW_SelectAxes_get_value'
```

```
WIDGET_CONTROL, WIDGET_INFO(SelectAxesTLB, /CHILD), SET_UVALUE=state,
/NO_COPY
RETURN, SelectAxesTLB
```

END

```
. *****
;
. *****
;
. *****
;
. ***** UNIT TESTER FOR :: CW_SelectAxes *****
;
. *****
;
;
;
```

```

; *****
; *****
;+
; NAME: test_CW_SelectAxes_event
;
; PURPOSE:
;   This is just a simple event loop for the unit tester. It demonstrates
;   some of the features of this compound widget.
; -
; =====
=====
PRO test_CW_SelectAxes_event, event
  WIDGET_CONTROL, event.id, GET_UVALUE = uvalue

  AxesGroup = uvalue
  Print, '-----'
  Print, 'Axis Group: ', AxesGroup
  Print, 'Axis: ', event.axis
  Print, 'Index: ', event.index
  items = *event.items
  Print, 'Selected Item: ', items[event.index]

END
; -----
;+
; NAME: test_CW_SelectAxes
;
; PURPOSE:
;   This is the unit tester for the compound widget CW_SelectAxes. What this
;   does is show a simple example of how to use the widget and make sure that
;   it is working properly.
; USE:
;   1) Start IDL
;   2) Open this file, with all it's pieces!
;   3) Compile the file
;   4) Type test_CW_SelectAxes at the IDL prompt.
;
; MODULES REQUIRED:
;   CW_SelectAxes_get_value
;   CW_SelectAxes_set_value
;   CW_SelectAxes_event
;   CW_SelectAxes
;   These two modules test the CW_SelectAxes modules:
;   test_CW_SelectAxes_event
;   test_CW_SelectAxes
;
; AUTHOR:
;   Douglas J. Larson, Ph.D.

```

```

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; Email: djl@srl.caltech.edu
;
;
; CATEGORY:
; COMPOUND WIDGET UNIT TESTER
;
;
; CALLING SEQUENCE:
; test_SelectAxes
; -
; =====
=====
PRO test_SelectAxes
sfont1 = '-adobe-helvetica-*-*-*-*120-*-*-*-*-*'
sfont2 = '-adobe-helvetica-bold-r-normal--24-240-75-75-p-138-iso8859- 1'
sfont3 = '-adobe-helvetica-bold-r-normal--12-120-75-75-p-70-iso8859-1 '

slideTLB=WIDGET_BASE(/col)
ListSetID0=CW_SelectAxes(slideTLB)
ListSetID1=CW_SelectAxes(slideTLB, DIMENSION = 3, UVALUE=1)

timelist=['Time', 'lifetime']
detectorlist=['m1', 'm2', 'm3', 'adcor', 'D1', 'D2', 'D3', 'D4']
ListSetID2=CW_SelectAxes(slideTLB, DEBUG=1, $
    TITLEAS = 'Real Data', TITLEPLACE=0, $
    LABELFONT=sfont1, LABELPLACE = 0, $
    XAXISLIST = timelist, $
    YAXISLIST = detectorlist, $
    LISTPLACE=0, $
    UVALUE=2)

spkids=['Kenny', 'Kyle', 'Cartman', 'Stan', 'Damien', 'Ike', 'Shelley']
spadults=['Chef', 'Matt Stone', 'Trey Parker', 'Mr. Garrison', 'Ned', $
    'Officer Barbrady', 'Mr. Mackey', 'Big Gay Al', 'Miss Crabtree']
spmisc=['Cows', 'Mr. Hankey', 'Mr. Hat', 'Terrance & Phillip']
ListSetID3=CW_SelectAxes(slideTLB, DEBUG=1, $
    TITLEAS = 'South Park Characters', TITLEPLACE=0, $
    LABELFONT=sfont1, LABELPLACE = 0, $
    LABELLIST = ['Kids', 'Adults', 'Oddities'], LISTPLACE=0, $
    DIMENSION = 3, $
    XAXISLIST = spkids, $
    YAXISLIST = spadults, $
    ZAXISLIST = spmisc, $
    UVALUE=3)

; Realize the widget:

```

WIDGET_CONTROL, slideTLB, /REALIZE

; Hand off control of the widget to the XMANAGER:

XMANAGER, "test_CW_SelectAxes", slideTLB, GROUP_LEADER=slideTLB, /NO_BLOCK

END

File Attachments

1) [cw_selectaxes.pro](#), downloaded 100 times
